

Science and Engineering Research Canada

Contact

Investing in people, discovery and innovation

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A Busy Summer at NSERC

Editorial by NSERC President Tom Brzustowski

It was generally quiet in Ottawa this summer, but NSERC hummed with activity. In addition to the normal summer workload associated with established programs, my colleagues launched three pilot programs and completed the groundwork for opening the first regional office.

In slightly more than one year since NSERC Council unanimously approved the initiatives collectively labelled the "New Vision," three pilot programs were designed, applications invited, selection committees assembled, the first competitions held, and awards made in two of them. Extensive consultations with the appropriate community for each program were held throughout this process, and the program designs reflect what we learned along the way. The results have yet to be announced, but I can provide a general summary of what has been done. For more information, visit the New Initiatives section of our Web site, www.nserc.gc.ca.

Small universities may need help to create the infrastructure needed for excellent research, even if they concentrate on just a very few subject areas. Researchers will not reach their potential if they face barriers that limit their research productivity. The Research Capacity Development (RCD) program was designed to help small universities meet their particular challenges in eliminating barriers to productivity as they develop their research strengths. RCD grants are institutional awards that provide up to \$300,000 per year for as many as five years, depending on the needs of the university. Thirty-four applications for RCD grants were received, and the selection committee recommended seven awards. By the time you read this, the awards will have been announced.

As readers of *Contact* well know, NSERC has long had a strong interest in improving the math and science education of Canadian children to "fill the pipeline" supplying future researchers. Since education is a provincial responsibility, NSERC cannot act directly in this field, but we are certainly able to be a helpful partner to those who can. CRYSTAL (Centres for Research in Youth Science Teaching and Learning) is the pilot program that will help university faculties of science, engineering and education work with current and future teachers and others to enable them to interest more

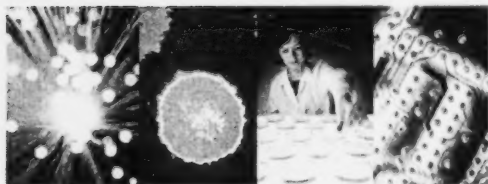
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NSERC, now also known as Science and Engineering Research Canada, is a key federal agency investing in people, discovery and innovation. It supports both basic university research through research grants, and project research through partnerships among postsecondary institutions, government and the private sector, as well as the advanced training of highly qualified people.

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Canadian children in science and mathematics and to educate them better. CRYSTAL awards are worth \$200,000 per year and are given for up to five years. Potential applicants submitted 41 Letters of Intent, and 16 of those were invited to prepare full applications for CRYSTAL awards. Ultimately, up to five grants will be recommended. They will be announced in spring 2005.

Canada's community colleges are an important source of technical expertise in many communities. When that expertise is made available to local industry, and particularly to small business, the local capacity for innovation is enhanced. Local producers are helped to adopt new technology to become more competitive and to introduce new or improved products, and the local economy benefits. The College and Community Innovation program (CCIP) is a pilot designed to see if NSERC can help increase the capacity of Canada's community colleges to support local innovation. Each project must include a training element so that students might learn from the experience. CCIP awards are institutional grants of \$100,000 a year for three years to help pay for a program involving many such projects, with the possibility of doubling in year two and tripling in year three to match any new funds the college might attract to support the program. In the event, 31 applications were received, and 6 awards were recommended. Visit our Web site for details of the awards.

NSERC's first regional office was set up in Moncton over the summer. It is intended to be our eyes, ears and helping hand in Atlantic Canada. We were very fortunate in attracting Dr. Yves Gagnon recently from the New Brunswick Innovation Foundation and the Université de Moncton to take charge of it, and the other three positions are being filled. (For more details on the Atlantic office, see the article on page 4.) The Winnipeg office will be next to be set up, and consultations are being conducted to determine how the needs of the prairie provinces might best be served.

We have also been achieving some success with our name. Our new trademark "Science and Engineering Research Canada" is gradually coming into use and I, for one, have not found it necessary to explain what it means to anyone seeing it for the first time. Our legal name continues to be what it always was, and is the basis for our acronym, NSERC, which is widely known and continues in use.

Finally, something else of interest to the research community was started this summer – a strategic plan for the decade beginning next year. NSERC Council will begin discussing a draft of the plan at the meeting in October. The proposal is ambitious, but one that I consider necessary if Canada is to continue on its trajectory of catching up in R&D capacity with the leaders of the industrialized world. We are months away from having a document in good enough shape to discuss with the research community, but some rough numbers about discovery grants may illustrate the scale of our ambitions: the current draft proposes that in 2014-15 discovery grants might be held by 14,000 principal investigators (vs. today's almost 10,000), with the average grant at \$50,000 (vs. today's \$32,000), and that the RTI budget should be \$50 million. The total budget in just these two categories would be \$750 million, an amount larger by \$100 million than the entire budget under NSERC's control this year. We can argue whether the number of principal investigators is high or the average grant low, but I think that the total is in the right ballpark. And that's just one part of the plan.

After a busy summer, I think that fall and winter at NSERC will be very busy too.

Introducing ... the Honourable David Emerson, Minister of Industry

As Canada's new Minister of Industry, David Emerson will be responsible for much of the government's science portfolio, including NSERC and the National Research Council of Canada.

Mr. Emerson attended the University of Alberta and obtained his Bachelor of Economics degree in 1968 and his Master of Economics degree in 1970. He then went on to Queen's University where he received his Ph.D. in Economics.

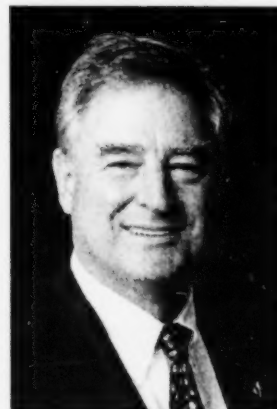
While completing his doctorate in 1972, he worked as a researcher for the Economic Council of Canada in Ottawa. In 1975, his passion for public service brought him to British Columbia, where he quickly rose through the ranks to become the province's Deputy Minister of Finance in 1984.

In 1986, he left government to become President and Chief Executive Officer of the Western and Pacific Bank of Canada in Vancouver. Four years later, he returned to the provincial government as Deputy Minister of Finance, where he was quickly promoted to Deputy Minister to the Premier and then President of the British Columbia Trade Development Corporation.

In 1992, he was appointed to lead the newly-created Vancouver International Airport Authority, which was responsible for developing, operating and improving the airport's services and facilities. Today, the airport is a major economic generator for Greater Vancouver and the province.

In 1998, Mr. Emerson was appointed President and Chief Executive Officer of Canfor Corporation, British Columbia's largest forestry company, leading it through one of the forestry industry's most difficult periods.

On June 28, 2004, as a candidate representing the Liberal Party of Canada, Mr. Emerson was elected as the Member of Parliament for Vancouver Kingsway.



The Honourable David Emerson,
Minister of Industry

eBusiness Update

Institutions Embrace New Financial Reporting System

"Response of research institutions to the new Financial Data Submission and Reconciliation System has exceeded our expectations," says Marc Roy, Project Manager. "More than 2,000 NSERC statements of account (Form 300) arrived through the system. This was a wonderful response for our very first cycle. Version 2 – to be released in winter 2005 – will include new functionalities that will make the system even more attractive."

Implementing Extranets

In September, three Discovery Grant Selection Committees (GSCs) began testing the advantages of using an extranet in the NSERC peer review process. Other GSCs will join sometime in October. Council members and research network grantees will also have an extranet this fall. Feedback through the phase in and testing phases will be appreciated. Our goal is to provide the most useful, user-friendly, and secure tool.

eSubmission Update: Nudging 100 Per Cent

Almost all applicants are now submitting their letters of intent to apply for Discovery Grants or Collaborative Health Research Project Grants electronically (submission rates are

affaires  business

93 per cent and 99 per cent, respectively). Project managers hope to achieve similar success with the Discovery Grants competition this fall, given that we have clarified instructions, reduced the number of steps, and improved the procedure for attaching documents.

The Common CV at NSERC

Our work continues. The goal is to make the Common CV part of the NSERC eSubmission grant application process early in the 2005 fiscal year.

Awards Gala

New date and location:

The Synergy Awards for Innovation Gala will be held at the Waterloo Inn, Waterloo, Ontario, on October 28, 2004. Tickets can be purchased through The Greater Kitchener Waterloo Chamber of Commerce Web site at www.greaterkwchamber.com.

For more information on the awards, visit the NSERC Prizes section of our Web site, www.nserc.gc.ca, under About NSERC.

University - Industry
Synergy 

National Forum to Discuss Access to Research Data

The National Research Council of Canada (NRC) will host a forum in November to discuss ways to help Canada get the most out of its publicly-funded research in the natural sciences, health and engineering.

Taking place November 22-23 at Library and Archives Canada in Ottawa, the forum for the National Consultation on Access to Scientific Research Data (NCASRD) will recommend a framework and guidelines to ensure open access to and long-term survival of the volumes of research data generated in Canada on an ongoing basis.

The impetus behind the forum is the growing concern about valuable data collections being lost if they are not centrally archived. A number of individuals and organizations have also argued that the results of research conducted with public money should be openly available for all to use.

Those invited to participate in the forum will include Canadian researchers in science, engineering and health. The report they help generate will be submitted to federal granting agencies, the federal government and NCASRD partners.

A similar report generated for the Social Sciences and Humanities Research Council and the National Archives of Canada in 2002 found that Canada lacked the infrastructure to adequately preserve data and provide sufficient public access. It recommended the creation of a national research data archive system to manage and guarantee access to research information.

NCASRD is a partnership between NRC, the Canada Foundation for Innovation, the Canadian Institutes of Health Research and NSERC.



Dr. Yves Gagnon and Ms. Catherine Vardy in front of their future office in Phase II of the Parc scientifique in Moncton.

Atlantic Regional Office Now Open for Business

The first of NSERC's regional offices is now up and running in Atlantic Canada. It will enable NSERC to devote more time to the Atlantic region, ensuring a close presence, and a better understanding of regional issues and the needs and concerns of researchers and students. Based in Moncton, New Brunswick, it will also create productive links with others in the region involved in research, training and innovation.

"The new office will contribute to building research capacity in Atlantic Canada and to stimulating innovation in the communities of the region," said NSERC President Tom Brzustowski.

Dr. Yves Gagnon, seconded to NSERC from the Université de Moncton, will use his vast experience as a researcher and research administrator, combined with his extensive knowledge of the region, to lead the Atlantic office during

its crucial initial phase. The physical office was set up in early July; NSERC is sharing space with NRC, including IRAP officers, in the Parc scientifique adjacent to the Université de Moncton. Catherine Vardy, Public Affairs Coordinator for the Atlantic office, will be responsible for planning, developing and implementing promotional and communications activities for the regional office. Ms. Vardy will also work closely with NSERC Reps and others to promote regional research achievements.

NSERC is committed to building a solid network of regional offices and playing a stronger role in supporting research, training and innovation in all regions of the country.

For more information on the regional offices, visit the New Initiatives section of NSERC's Web site, at www.nserc.gc.ca.

Canadians Earn Gold and Silver at International Biology Olympiad

The first-ever Canadian delegation to the International Biology Olympiad returned home in July with two of its members having achieved gold and silver medal standing as the fruits of their labours.

Three high-school students – Jenny Wang from Toronto, Vishu Singh from Markham, Ontario, and Ralph Zhang of Edmonton – competed against 156 other competitors from 39 countries in the July 11–18 event. Ms. Wang achieved the gold medal standard and Mr. Singh the silver, while Mr. Zhang narrowly missed the standard to receive a bronze medal.

The IBO competition brings together high-achieving secondary school students selected through national competitions held in their respective countries. Over a period of two days, participants complete two grueling, university-level exams, each lasting up to six hours – one focused on theory and the other on laboratory work. Questions cover a full range of modern biology topics that includes biochemistry, genetics, plant and animal structure, pharmacology and more.

Exams are marked by a panel made up of international experts from the participating countries. Dr. Chary Rangacharyulu, a physics professor at the University of Saskatchewan, helped lead the Canadian delegation and also sat on the jury. "We had our own marathon sessions of reviewing the questions, verifying the answers, checking the scores, and so on," he comments.

Dr. Rangacharyulu also chairs the committee that is bringing the IBO to Canada for the first time – the University of Saskatchewan in Saskatoon will host the event July 15–22, 2007. He hopes to



Shown in Brisbane, Australia, are (left to right): Dr. Chary Rangacharyulu; Dr. Peta Bonham-Smith, University of Saskatchewan; Ms. Estella Tsui (team guide from Australia); Ms. Andrea Regier (teacher); Mr. Vishu Singh; Ms. Jenny Wang; Mr. Ralph Zhang; and Dr. Geoff Hughes, University of Saskatchewan.

see as many as 200 competitors from 50 countries, including a full team of four from Canada. "These science activities challenge and bring out the best of our bright, young minds," he says.

This year's Canadian team was chosen after a 10-day training camp in April, which included five days of instruction followed by review and testing.

The IBO has been held annually since 1990 with a view to promoting the advanced study of biology.

International Science Olympiads are held under the auspices of UNESCO (the United Nations Educational, Scientific and Cultural Organization)

and have been held since 1959, when the first International Mathematics Olympiad took place. Today, they are held annually in astronomy, biology, chemistry, informatics, mathematics and physics. Dr. Rangacharyulu says Canada has previously hosted science Olympiads in mathematics (Toronto, 1995), chemistry (Montréal, 1997) and physics (Sudbury, Ontario, 1997).

"I hope we can engage in fruitful collaborations with NSERC and other organizations in our endeavours to encourage Canadian youth to pursue science education," Dr. Rangacharyulu says.

Is it Newsworthy?

The *Toronto Star's* science reporter, Peter Calamai, stresses he is "a reporter who covers news about science, not ... a science reporter."

This distinction isn't immediately obvious, but it gets to the heart of science reporting: a good journalist isn't writing for scientists, or even for people who are interested in science. Instead, he or she is writing for people who don't have any idea that they're interested in science, and who need the right reporter to come along and pique their interest.

When I came to NSERC for the summer, I thought writing science would be a breeze. I'm almost done a combined journalism and psychology degree at Carleton University, and I thought I was pretty much ready to write about any aspect of anything.

Soon, however, I found myself bogged down in language I'd never heard, 20-page journal articles I'd never understand and feeling way over my head.

NSERC Web Site Offers a New Look and Easier Navigating

As many of you will have noticed, we've made a number of changes to our Web site recently. While some help us conform to the federal government's "Common Look and Feel" site standards, others (such as new indexes and drop-down menus) are aimed at making things easier to find. Here are some of the highlights:

- On the left side of our **Home page**, there is now a handy direct link to the latest on the **New Initiatives** announced by the President last fall.
- The revised top navigation bar features our greatly revamped **Site Map** and updated **Funding** sections. **About NSERC**, a key section of the site, has also been moved there. Under its sub menu **Corporate Initiatives**, you can find information about most of NSERC's major corporate activities such as **eBusiness**, **NSERC Representatives**, the **NSERC SPARK** program, and, of course, our **New Initiatives**.

Be sure to visit www.nserc.gc.ca soon, and change the bookmarks for your favourite pages.

It took some advice from a journalism professor and a provocative speech by Peter Calamai – passed on by a colleague – to make me realize that if I can't understand and get excited about a topic, it's very likely no one in my intended audience will be able to either.

As Mr. Calamai puts it: "Real reporters want to convey news in a way that convinces people this is important enough for them to stop turning the pages of the newspaper and read an article, or cease pushing buttons on the TV remote and watch and listen to an item."

If the story I'm telling doesn't have that crucial aspect, it may be interesting, it may have scientific validity, it may even be revolutionary in its field, but it isn't news.

Editor's note: The writer of the above piece, Shannon Montgomery, spent the summer working for the NSERC Newsbureau. She has now resumed her studies at Carleton University.

Read Peter Calamai's speech at: http://www.albertaingenuity.ca/news_publications/news/celebrating_ingenuity.php.

Making the World a Safer Place

NSERC is now conducting the peer review for an initiative that provides weapons scientists from former Soviet Union and Commonwealth of Independent States (CIS) countries with opportunities to redirect their talents to peaceful scientific pursuits.

The strategy is to establish the basis for long-term economic and scientific interaction with Russia and other CIS countries by pairing the capability of former weapons scientists with current international science, health, technology and security problems and needs.

The Global Partnerships Program (GPP) was announced by the Prime Minister in 2003 and is administered in Canada by the Department of Foreign Affairs and International Trade. It works with the International Science and Technology Centre in Russia (ISTC), which coordinates the efforts of numerous governments, international organizations, and private-sector industries.

A side benefit to Canadian participation in this program is the opening of many opportunities for collaboration between Canadian researchers and those in the former Soviet Union countries. For more information on NSERC's role in the GPP program, contact Daphné Toussaint at NSERC, by telephone at (613) 944-6246 or by e-mail at daphne.toussaint@nserc.ca; more information on the ISTC itself may be found on its Web site, www.istc.ru.

Laval Researcher Vital to Peat Industry's Eco-Friendly Disposition

For decades, Canada has been the world's largest producer of peat for horticultural applications. Now, as a result of trailblazing research by Dr. Line Rochefort, the Canadian peat industry has also emerged as a world leader in sustainable management and restoration of complex peatland ecosystems.

Dr. Rochefort is a professor of plant sciences at Université Laval and leader of the Peat Ecology Research Group (PERG), which includes experts from two other departments at Laval, and from the University of Waterloo and McMaster University. She is an internationally renowned authority on the restoration of peatlands, a reputation earned after devoting more than a decade to understanding the complexities of peat vegetation under both laboratory and natural environment conditions. Throughout her research career, Dr. Rochefort has collaborated closely with industrial sponsors and continues to represent their interests as holder of the Industrial Research Chair (IRC) in Peatland Management, a five-year \$2.1 million program officially launched last fall.

"There is no question in my mind that Line Rochefort's work has had, and continues to have, a huge impact on our industry," explains Gerry Hood, president of the Canadian Sphagnum Peat Moss Association (CSPMA). "She has truly helped us earn worldwide recognition as an environmentally responsible industry and that's particularly important in a market that favours eco-friendly products."

Industry interest in peatland restoration surfaced in the early 1990s, shortly after environmental activists began sounding alarms about the potentially devastating effect of peat harvesting on natural ecosystems. Looking for answers, CSPMA held a two-day workshop on the subject in 1992, marking the start of Dr. Rochefort's enduring relationship with the industry group and 12 of its members. Since then, the industry and government funding partners (including



Students taking Dr. Line Rochefort's peatland ecology course get a firsthand look at sphagnum mats.



Dr. Line Rochefort.

three NSERC Collaborative R&D grants) have invested more than \$3 million into finding ways of restoring harvested peat bogs into functioning peat land ecosystems.

The early results were discouraging, recalls Mr. Hood, but hopeful signs materialized from subsequent greenhouse experiments. The next step would prove even more challenging as Dr. Rochefort proceeded to field studies: sprinkling Sphagnum peat moss diaspores onto harvested peat land, adding protective mulch, and carefully observing the influence of hydrological conditions on peat moss growth. After considerable outdoor experimentation, Dr. Rochefort and members of PERG triumphantly demonstrated peat land restoration on a small scale (one-square-metre plots).

That success prompted Dr. Rochefort and a colleague to co-author the world's first guide on Peat Land Restoration in 1997. The 150-page guide is now an essential training manual when Dr. Rochefort and PERG members conduct peatland restoration workshops for employees of Canadian peat

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Anniversary Gala to Celebrate the Michael Smith Awards

NSERC is pleased to announce it will be hosting the Michael Smith Awards for Science Promotion Gala in Vancouver, British Columbia, on Monday, November 22, 2004. This year's event has special meaning because we will be celebrating the 10th anniversary of the creation of the Awards, and because we will be holding the ceremony in British Columbia. Science World is working closely with NSERC to commemorate Michael Smith's achievements not only as a

Nobel Prize-winning scientist, but as a great British Columbian whose humanitarian achievements were important both for his province and his country.

The Michael Smith Awards honour individuals and groups who make an outstanding contribution to the promotion of science in Canada, through activities encouraging popular interest in science or developing science abilities. Each individual recipient will

receive a personal award of \$5,000. Winning organizations will be awarded \$10,000 to further science promotion activities. The recipients will as well receive a medal bearing Dr. Smith's likeness and a framed citation.

For more information on the awards, visit NSERC's Web site at www.nserc.gc.ca/msmith/msawards/the_awards_e.htm.

Newsbureau Working for You

The NSERC Newsbureau continues to dig up interesting stories to alert the media about NSERC issues and NSERC-funded researchers. Here are some examples of what we've been up to since the last time we reported to you.

Drs. Georges Beaudoin and Réginald Auger's research about Martin Frobisher's 18th century mistaken gold find was featured in the July 5th issue of the Newsbureau Bulletin. As a result, *The Globe and Mail* featured the story the next day.

The discovery by Dr. Gregor Reid that good bacteria can help fight off infections in humans was the subject of the Newsbureau Bulletin on July 26th. During the following month, stories were published in *The London Free Press*, the *Edmonton Journal*, *The Toronto Star*, *The Chronicle Herald* (Halifax) and *The Globe and Mail* (twice).

A story on Dr. Alidad Amifazli's work was sent out in the August 12th issue of the Newsbureau Bulletin. Dr. Amifazli is trying to develop a superhydrophobic material, which could mean the end of window washing. The *Edmonton Journal*, the *Winnipeg Free Press*, *The Windsor Star*, the *Ottawa Citizen*, the *Calgary Herald*, *The Sault Star* and *The Province* (Vancouver) published the story the next day.

Laval Researcher – continued from page 7

producers. In one particular workshop, participants carried out restoration of the Bois-des-Bel peatland, an 11-hectare abandoned peat bog that now serves as the main outdoor laboratory for PERG.

By 2001, several companies had started restoration work on their abandoned peat sites and today restoration work is underway on more than 800 hectares of mined peat lands in New Brunswick, Quebec, Ontario and Saskatchewan.

Through the new IRC initiative, Dr. Rochefort will be able to expand the scope of her research under three major streams. In the first stream, Dr. Rochefort and the PERG team will conduct further experiments related to sustainability, biodiversity, hydrology and carbon storage at different restored sites throughout Canada, with special emphasis on the Bois-des-Bel field station. The second stream involves the feasibility of cultivating small fruit bushes (blueberries and cloudberries) and small trees as a method of reclaiming peat lands that can't be restored to a self-sustaining state. Lastly, the researchers will explore the cultivation or farming of Sphagnum moss with a view to developing valuable new growing mixtures for the peat industry.

"We are really proud of Line Rochefort's work," says Mr. Hood. "This chair is yet another example of the benefits our companies have come to realize from the pooling of university and industry resources."